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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/045,467

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Fang-Hvi Chan

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LADAS & PARRY

5670 WILSHIRE BOULEVARD, SUITE 2100

LOS ANGELES, CA 90036-5679

EXAMINER

LAO, LUN YI

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

05/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/045,467

Applicant(s)

CHAN ET AL.

Examiner

LUN-YI LAO

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al(6,067,141).

Yamada et al teach a liquid crystal display device comprising a plurality of display cell comprising a first substrate(50) and a second substrate(60) facing the first substrate(50); a space for housing liquid crystal molecules(69) being formed between a first substrate(50) and a second substrate(60); a plurality of liquid crystal molecules formed in the space in a predetermined arrangement(see figures 3A-3C; column 7, lines 61-68; column 8, lines 1-29; column 12, lines 35-68; column 13 and column 14, lines 1-8); four electrodes(a plurality of electrodes(51) in each display cell)(see figure 3C) disposed on the first substrate(50) and at corner of each display cell(8) and the electrodes(51) disposed such that a center area of each display cell(8) is prevented from being shielded by the electrodes(51), and when an external voltage(see figure 3A)

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is applied between the four electrodes(51); an axially symmetric electrical field is generated between the four electrodes to change the arrangement of the liquid crystal molecules(69)(see figures 3A, 3C; column 12, lines 35-68; column 13 and column 14, lines 1-8).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiltshire(5,313,562) in view of Liu et al(6,476,896).

**Claim 1**

Wiltshire teaches a liquid crystal display device comprising a first substrate(2) and a second substrate(3) facing the first substrate(2). A space is formed between the first substrate(2) and the second substrate(3)(see figure 1 and column 2, lines 28-55). A plurality of electrodes (9, 10 or 11, 12) are paired and disposed on the first substrate(2)(see figure 1 and column 2, lines 28-55). Wiltshire teaches electrodes(9, 10 or 11, 12) paired and being in parallel with each other(see figure 1). Wiltshire teaches each pair of electrodes(9, 10 or 11, 12) comprises a first electrode (9) with a first end

and two symmetric first lateral sides connecting with the first end, formed on the first substrate(2) and a second electrode (10) with a second end and two symmetric second lateral sides connecting with the second end, formed on the first substrate(2) and the first end faces the second end with a discharge gap there between(see figure 1 and column 2, lines 28-55). When an external voltage(VX) is applied between the first and the second electrodes(9, 10), an axially electrical field is generated to change the arrangement of the liquid crystal molecules(see figures 1, 2, 4; column 2, lines 56-68 and column 3, lines 1-31).

Wiltshire fails to disclose the length of the first or second end is less than the length of the two symmetric first lateral sides.

Liu et al teach the a first electrode with a first end and two symmetric first lateral sides connecting with the first end, formed on a first substrate, wherein the length of the first end is less than the length of the two symmetric first lateral sides(see figure 6(h)); a second end and two symmetric first lateral sides connecting with a second end, formed on a first substrate, wherein the length of a second end is less than the length of the two symmetric first lateral sides(see figures 6(h)); the first end facing the second end with a discharge gap therebetween(see figures 4,5, 6(h), 7(a); abstract; column 5, lines 40-50; column 6, lines 61-68 and column 7, lines 1-5). It would have been obvious to have modified Wiltshire with the teaching of Liu et al, since Liu has disclosed the shape of electrodes could be changed(see figures 6(a)-6(h) and abstract and the modified LCD display could provide fast response speed for its application and higher transmittance than conventional LCD displays(see abstract).

**Claim 2**

Liu teaches that the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially perpendicular to the first substrate(see figures 4, 7a; column 2, lines 63-68 and column 5, lines 40-60).

**Claim 3**

Liu teaches that the predetermined arrangement of the liquid crystal molecules is in a vertical alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially perpendicular to the second substrate(see figures 4, 7a; column 2, lines 63-68 and column 5, lines 40-60).

**Claim 6**

Wiltshire teaches an LCD display having a first electrode(9 or 11) having a first end and a second electrode(10 or 12) having a second end(see figure 1 and column 2, lines 28-65) and the first electrode is symmetrical to the second electrode along a line of axial symmetry(see figure 1)

**Claims 8 and 9**

Wiltshire as modified teach the width or thickness of the first electrode(30) increases from the first end to the other end, and the width or thickness of the second electrode increases from the second end to the other end(see Wiltshire's figure 1 and Liu's figure 6(h)).

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Wiltshire(5,313,562) in view of Liu and Kim et al(6,642,985).

**Claim 4-5**

Wiltshire teaches an LCD display having a first electrode(9 or 11) having a first end and a second electrode(10 or 12) having a second end(see figure 1 and column 2, lines 28-65). Wiltshire does not specifically teach the predetermined arrangement of the liquid crystal molecules in a horizontal alignment.

Kim et al(6,642,985) teach the predetermined arrangement of the liquid crystal molecules is in a horizontal alignment, each liquid crystal molecule has a longitudinal axis, and the longitudinal axis is substantially parallel to the first substrate(1) or second substrate(11) and perpendicular to a line formed by the first end and the second end(see figures 3-4 and column 4, lines 10-23). It would have been obvious to have modified Wiltshire as modified with the teaching of Kim et al(6,642,985), so as to provide an LCD display would be more productive and stable.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-6 and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue the Liu's wall-bump structure are not conductors on page 7. The examiner disagrees with that since Liu teach wall-bump structure are conductors(see figures 4, 6(h); abstract and column 5, lines 28-30).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee et al(6,177,973) teaches an LCD display having a plurality of electrodes(11, 12) for vertical alignment.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi Lao whose telephone number is 571-272-7671. The examiner can normally be reached on M-F.

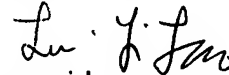
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 8, 2007

A handwritten signature in black ink, appearing to read "Lun-yi Lao", is written above the printed name.

Lun-yi Lao

**Primary Examiner**